Web-based Altimeter Service

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Abstract

We are developing a web-based system to allow updating and subsetting of altimeter data. This is crucial to the expanded use and improvement of altimeter data. The service aspect is necessary for altimetry because the result of most interest (sea surface height anomaly, SSHA) is composed of several components which are updated individually and irregularly by specialized experts. This makes it difficult for projects to provide the most up-to-date products. Some components are the subject of ongoing research, so the ability for investigators to make products for comparison or sharing is important. The service will allow investigators/producers to get their component models or processing into widespread use much more quickly. For coastal altimetry, the ability to subset the data to the area of interest and insert specialized models or data processing results is crucial.

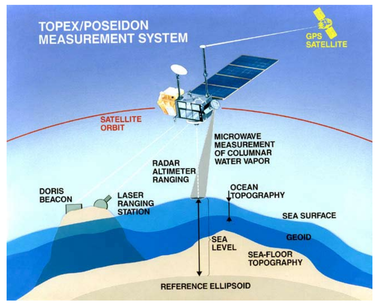
A key part of the Altimeter Service is having data producers provide updated or local models and data. In order for this to succeed, producers need to register their products with the Altimeter Service and agree to provide the product either on demand or in a way that can be integrated into the basic altimeter data record structure.

We will describe the basic structure of the web service and the steps toward implementation. We will integrate the web and Grid workflow features of SciFlo with algorithms developed for the Ocean Surface Topography Science Team work to produce improved Geophysical Data Records (GDRs) with retracking (RGDRs) and other improved data elements. TOPEX RGDRs in a netCDF format that has been coordinated with Jason data will be the initial basis of the service. The goal is to allow individual users to produce their own GDRs and/or SSHA data sets using data components that they select from known sources or supply themselves. In particular, we will enable for the first time customized and easily repeatable regional studies by allowing users to "swap in" accurate, high-resolution, local models (tides and other corrections) and update the SSH and SSHA for regions of interest. In addition to time and space subsetting, we will provide the ability to select variables of interest as the data will be in netCDF, allowing straightforward extraction of data elements.

This service will be permanently installed at PO.DAAC in 2010.

Objective

- Develop a web-based tool for subsetting and updating altimeter data
  - Altimeter data consist of several specialized "components" that are updated by different groups at irregular intervals.
  - Specialized data exist for localized areas.
- Work with providers to get tool access to data and models as they are updated.
  - Locate specialized models for coastal areas.



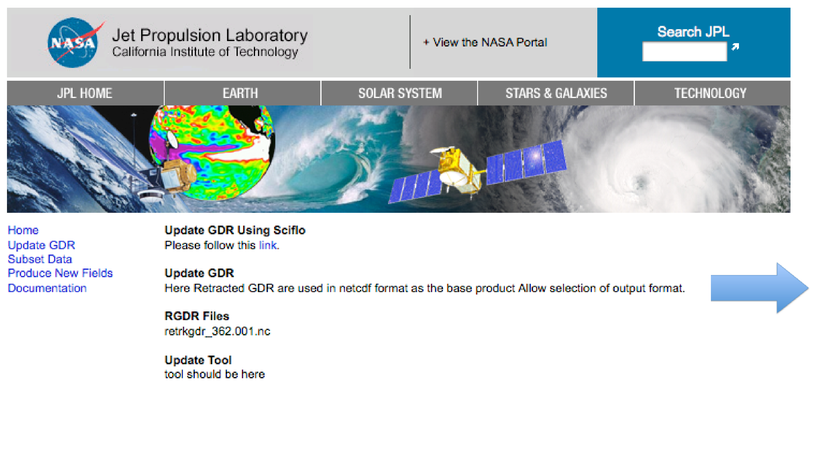
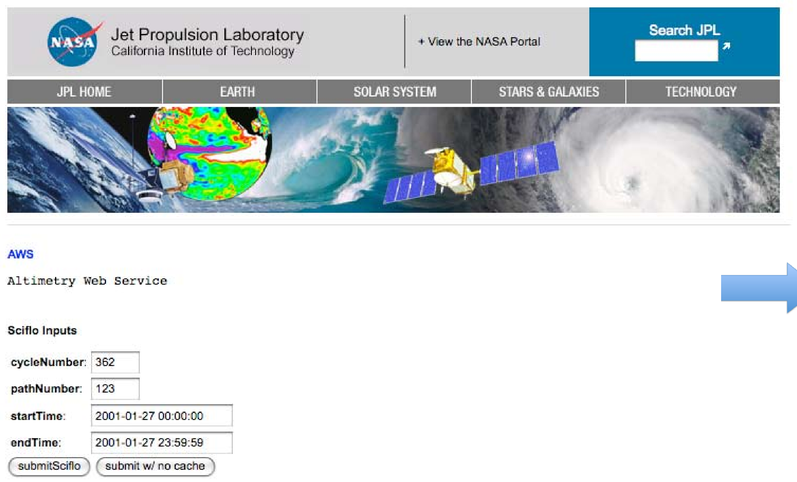
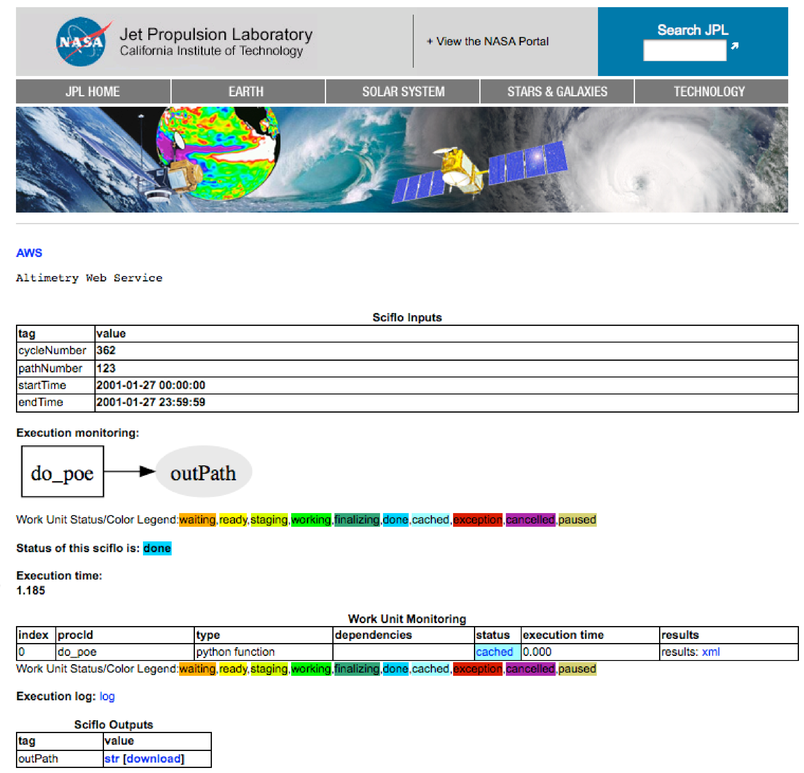
Altimeter Sea Surface Height Measurement Components for Updating:

- Orbit
- Tides
- Radiometer
- Geoid
- Range processing, corrections
- Atmospheric – range, inverse barometer

Approach

- Build on SciFlo system for user interface, data access, algorithm control
- Modularize Geophysical Data Record (GDR) update algorithms to provide processing functionality
- Integrate SciFlo and GDR algorithms
- Develop data subsetting (localization)
- Work with scientists, data centers to get access to models and data sets

Key Milestones

• Develop local processing, modular GDR algorithms	03/09
• Integrate SciFlo and modular algorithms	04-08/09
• Develop data subset capabilities	04/09
• Develop user-specified output formatting	08/09
• Develop collection of external data and algorithms	03-12/09
• Set up web presence and beta test with selected users	12/09
• Install test version at PO.DAAC	01/10
• Full integration with PO.DAAC	04/10

Sample Pages